

Public Workshop Handout: Proposed Amendments to the Alternative Fuel Conversion
Certification Procedures
May 1, 2013 – El Monte, California
1:00 p.m. – 4:00 p.m.

Federal Natural Gas Fuel Specifications (CFR40 §86.1313-98)

Link: [http://www.ecfr.gov/cgi-bin/text-](http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&SID=c2c15fb158c903f1ea5a70be8a73ee60&rgn=div8&view=text&node=40:20.0.1.1.1.8.1.17&idno=40)

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PROPOSED NATURAL GAS CERTIFICATION FUEL SPECIFICATIONS

Item		ASTM test method No.	Value
Methane	min. mole pct.	D1945	89.0
Ethane	max. mole pct.	D1945	4.5
C ₃ and higher	max. mole pct.	D1945	2.3
C ₆ and higher	max. mole pct.	D1945	0.2
Oxygen	max. mole pct.	D1945	0.6
Inert gases:			
Sum of CO ₂ and N ₂	max. mole pct.	D1945	4.0
Odorant ¹			

¹ The natural gas at ambient conditions must have a distinctive odor potent enough for its presence to be detected down to a concentration in air of not over 1/5 (one-fifth) of the lower limit of flammability.

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ARB LPG Fuel Specification (Title 13, CCR, section 2292.6)

Link: http://www.arb.ca.gov/regs/t13-regulations/s2290-2293_5.pdf

§ 2292.6. Specifications for Liquefied Petroleum Gas.

Proposed Liquefied Petroleum Gas Certification Fuel Specifications

Item		ASTM test method No.	Value
Propane	Volume %	D 2163-87	85.0 (min) [FNa]
Vapor Pressure at 100<<sup>>> °F	psig	D 1267-89 D 2598-88 [FNb]	208 (max)
Butanes	Volume %	D 2163-87	5.0 (max)
Butenes	%	D 2163-87	2.0 (max)
Pentenenes & heavier	Volume %	D 2163-87	0.5 (max)
Propene	Volume %	D 2163-87	10.0 (max)
Residual matter: residue on evap. of 100 ml	milliliters	D 2158-89	0.05 (max)
Oil stain	Observed	D 2158-89	Pass [FNc]
Corrosion	Copper strip	D 1838-89	No. 1 (max)
Sulfur	Parts Per Million by Weight	D 2784-89	80 (max)
Moisture content		D 2713-86	pass
Odorant [FNd]			

[FNa] Propane shall be required to be a minimum of 80.0 volume percent starting on January 1, 1993. Starting on January 1, 1999, the minimum propane content shall be 85.0 volume percent.

[FNb] In case of dispute about the vapor pressure of a product, the value actually determined by Test Method ASTM D 1267-89 shall prevail over the value calculated by Practice ASTM D 2598-88

[FNc] An acceptable product shall not yield a persistent oil ring when 0.3 ml of solvent residue mixture is added to a filter paper, in 0.1 ml increments and examined in daylight after 2 min. as described in Test Method ASTM 2158-89.

[FNd] The liquefied petroleum gas upon vaporization at ambient conditions must have a distinctive odor potent enough for its presence to be detected down to a concentration in air of not over 1/5 (one fifth) of the lower limit of flammability.